

REMARKS

With the foregoing amendments, Applicant amends the related applications section to include the U.S. patent application numbers of concurrently filed, related applications. Applicant also amends claim 34 to further clarify Applicant's invention and to place the claims in a format suitable for allowance. No new matter is introduced by the claim amendments.

Applicant gratefully appreciates the Examiner's acknowledgement of patentable subject matter in claims 2-5, 7-17, 19-22, and 24-33.

In response to the Office Action mailed December 12, 2006, Applicant respectfully requests reconsideration. Claims 1-37 are pending in the application of which claims 1, 18, and 34-37 are independent. The Examiner rejected claims 1, 6, 18, 23, and 34-37 under 35 U.S.C. § 103 and objected to claims 2-5, 7-17, 19-22, and 24-33 as being dependent on a rejected base claim.

Rejections Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1, 6, 18, 23, and 34-37 under 35 U.S.C. § 103(a) as being unpatentable over Moore et al. (U.S. Patent Application Publication No. 2003/0200390). Applicant maintains that the Examiner has failed to present a *prima facie* case of obviousness where Moore does not disclose, teach, or suggest all of the elements of Applicant's claims. See MPEP § 2143.03 ("To establish a *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.").

Specifically, Moore does not disclose, teach, or suggest "first tier objects representing partitions of the virtual volume data", and "second tier objects representing a logical configuration of the virtual volume. In Applicant's claims, first

tier objects representing partitions of the virtual volume data reflect the physical partitioning among the persistent memory devices (ALUs), and second tier objects representing logical configuration of the virtual volume reflect configurations such as striping or mirroring. See Applicant's specification at para 075; para 076; and FIG. 6. The Examiner cites to the "RAID Volume 1" and "RAID Volume 2" in Moore's FIG. 1A as disclosing Applicant's first tier, and the "Virtual Volume" in Moore's FIG. 1A as disclosing Applicant's second tier. See Office Action at 2. Applicant maintains that such an analogy is improper since a RAID volume may include logical configuration information. For example, it is known in the art that RAID 1 includes mirroring. Where the first tier object in Moore is a RAID volume, the architecture is inherently different than Applicant's claims where the logical configuration is represented by objects in the second tier and the partitioning is represented by objects in the first tier.

In addition, Moore nowhere discloses or suggests first tier and second tier processors, either explicitly or inherently. The Examiner states that Moore does not specifically disclose the first tier and second tier storage processors or the Virtualization Coherency Manager (VCM) of Applicant's claims, but maintains that these limitations are inherent in Moore. See Office Action at 2-3 ("The storage processors would be necessary to implement and control the RAID volumes... and would be necessary to implement and control the virtual volume"). However, the Examiner has failed to demonstrate that the first and second tier storage processors and the VCM are inherent or necessary to control the virtual volume in Moore since it would be possible to implement Moore with a single storage processor. See Akamai Technologies, Inc. v. Cable & Wireless Internet Servl, Inc., 344 F.3d 1186, 1192 (Fed.

Cir. 2003) (“A claim limitation is inherent in the prior art if it is necessarily present in the prior art, not merely probably or possibly present.”). In fact, in Moore, only one controller is disclosed to implement the virtualization. See Moore at para 006 (“a plurality of virtual volumes implemented by a storage controller”); para 0008 (“The controller... provides virtual volumes for manipulation of data”); para 0018 (“RAID volumes may be implemented within the software of a controller”) (emphasis added). Moore nowhere discloses or suggests first tier and second tier processors, much less, assigning first tier objects to selective ones of the first tier storage processors and assigning the second tier objects to selective ones of the second tier storage processors, as recited in Applicant’s independent claims.

Where Moore does not disclose or suggest “first tier objects representing partitions of the virtual volume data”, “second tier objects representing a logical configuration of the virtual volume”, “first and second tier storage processors”, and a VCM that “assigns the first tier objects to selective ones of the first tier storage processors and assigns the second tier objects to selective ones of the second tier storage processors based on the logical tree,” the rejection of claims 1, 6, 18, 23, and 34-37 under 35 U.S.C. § 103 should be withdrawn since they contain the aforementioned elements.

Claim Objections

In the Office Action, the Examiner objected to claims 2-5, 7-17, 19-22, and 24-33 as being dependent upon a rejected base claim, but states that claims 2-5, 7-17, 19-22, and 24-33 would be allowable provided the claims were re-written in independent form including all of the limitations of the base claims and any intervening

claims. As demonstrated in the foregoing arguments with respect to claims 1, 6, 18, 23, and 34-37, Moore does not disclose, teach, or suggest every element of those claims. Where claims 2-5, 7-17, 19-22, and 24-33 are dependant on claims 1, 18, and 23, they are allowable, as written, for at least the same reasons.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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